NOTES

THE statue of Dr. Priestley will be unveiled at Birmingham on Saturday, Aug. 1 (the centenary of his discovery of oxygen). Prof. Huxley will make the presentation to the town, on behalf of the subscribers, and will deliver an address in the Town Hall.

WE understand that the recently established Stricklandian Curatorship in the Cambridge University Natural History Museum has been offered to and is likely to be accepted by Mr. Osbert Salvin, F.R.S., one of our most distinguished ornithologists.

LORD LILFORD has just returned from a natural history cruise in the Mediterranean, and amongst the most interesting specimens he has brought home with him is a pair of Audouin's Gulls (*Larus audouini*) from the small island of Toro on the coast of Sardinia, which he has deposited in the gardens of the Zoological Society. The rareness of these birds makes them of peculiar interest.

A LARGE collection of giraffes, antelopes, and other African mammals has lately been imported into Hamburg by Mr. C. Hagenbeck, the well-known dealer in animals of that city, from the Atbara district of Upper Nubia. Three of the finest giraffes have been secured by the Zoological Society, and are daily expected to arrive in London.

A REPORT is said to be current at St. Petersburg that the Austrian Polar Expedition, of which nothing has been heard for a considerable time, and respecting the safety of which apprehension is accordingly entertained, is lying off the coast of Novaya Zemlya.

THE Caen Academy of Science and Art proposes as the subject of the Le Sauvage prize, of the value of 4,000 francs, to be awarded in 1876, the question of the Function of Leaves in the Vegetation of Plants. The Academy does not want simply an exposition of the present state of Science on this important question; it requires, besides, from competitors, exact experiments performed by themselves, and new facts tending to throw light upon, invalidate, confirm, or modify doubtful points in the theories at present accepted. The memoirs ought to be sent to the Academy before Jan. 1, 1876.

A FIFTH "sub-edition" of Dana's "Mineralogy" has been issued, with an appendix, by Prof. Brush.

JOSHUA HOOPES, the last survivor of the old school of the botanists of Chester County, Penn., of which Darlington was the chief, and the "Flora Cestrica" the memorial, died on May 11 at the age of 86.

MR. HERBERT SPENCER has published in a separate form, with some additional correspondence and comments, the correspondence which was carried on in NATURE between himself, the "Quarterly Reviewer," Mr. R. B. Hayward, and others.

M. LEVERRIER has presented to the Council of the Observatory a new set of regulations for the better working of the establishment. In drawing out these regulations the illustrious astronomer took advantage of the visit he recently made to Greenwich Observatory.

MAGNETIC instruments are to be erected on a piece of ground situated between the Boulevard Arago and the Observatory Gardens, Paris. This land belongs to the French Government, which has given it up for the purpose mentioned.

M. FAYE has been nominated President of the Bureau des Longitudes. M. Janssen, who was a member of the Section of Geography, has been appointed by the Minister a member of the Section of Astronomy. There will be an election to fill up the place thus vacated. This is the first time that a member has been transferred from one section to another.

DR. GARRIGOU, of Bagnères de Luchon, has established, at his own expense, a laboratory for analysing the mineral waters of the Pyrenees. The laboratory is open to men of science for their own researches.

THE Worshipful Company of Clothworkers has founded a "Professorship of Textile Industries" in connection with the Yorkshire College of Science, with a stipend of 300*l.* a year and two-thirds of the students' fees. The stipulated qualifications for the post have been just announced. The selected candidate will be required to have a practical knowledge of all materials used in the woollen and worsted manufactures, and the selection of materials for special kinds of goods; to be able to give instruction in every department of weaving, including the practical handling of the loom; plain drawing, and analysis of patterns; to apply the laws of colour to the production of coloured designs, and to finish coloured designs on paper, prefiguring the woven fabric; to make all the calculations required in the manufacture of woollen or worsted goods; to explain and illustrate the processes of carding, combing, and spinning; and to give practical illustrations of scouring, fulling, and finishing. The chemistry of dyeing will be taught by the Professor of Chemistry. It will be a condition of appointment (*inter alia*) that the Professor is to give lectures at stated times upon improved modes of manufacture at other of the chief towns connected with the clothworking industry both in Yorkshire and the west of England.

THE result of the Sandwell Park trial sinking for coal being that a seam 20 ft. 6 in. has been found at a depth of 418 yards, it is proposed to furnish an account of the fossils met with and the general character of the red rocks passed through. Prof. Ramsay and others have promised their assistance for this work.

URIAH A. BOYDON, of Boston, has deposited with the Franklin Institute the sum of 1,000 dols. to be awarded as a premium to "any resident of North America who shall determine by experiment whether all rays of light, and other physical rays, are or are not transmitted with the same velocity." The memoirs, which are to describe in detail the apparatus, mode of experimenting and results, are to be sent in to the secretary of the Institute by Jan. 1, 1875. The Institute is to appoint three judges, and has reserved to it the power to decide whether or not the recommendation of the judges shall be carried out. Should the judges think proper, they may require the experiments described in any of the memoirs to be repeated in their presence.

THE report of the State Board of Health of Massachusetts, 1874, says that a large part of the 450 analyses there given were performed by a lady in the laboratory of the Massachusetts Institute of Technology.

THE Geological Society of France intends to hold its annual session this year at Mons, immediately on the conclusion of the session of the French Association for the Advancement of Science. The meetings commence on August 30, and will last about a week, during which some interesting excursions have been arranged for.

IN the Engineering Department of King's College the following Physical Science Exhibitions will be given in October next. The Treake Entrance Exhibition of 20*l.*, also two Exhibitions of 30*l.* and 21*l.* will be given by competitive examination among the students matriculating in this department at that time, provided a satisfactory degree of proficiency is shown by the candidates. The examination will consist of four papers, two in mathematics, one in elementary mechanics and physics, and one in chemistry, and will take place on Thursday, October 1, and two following days.

The Provost and Fellows of Worcester College, Oxford, have voted the appropriation of 2 per cent. of their revenues to non-collegiate University uses, and have resolved that this sum for the next five years shall be paid in equal proportions to the Bodleian Library and University Museum.

Mr. F. Butler, B.A., of Worcester College, who obtained a first class in Natural Science at the recent examination at Oxford, has been appointed Natural Science Master of Reading School, and during the vacation a laboratory will be fitted up at the school under his supervision.

The large and lucrative industry which has sprung up on the American coasts in the preservation of lobsters in tins, has induced some energetic persons to start a lobster farm near Boston, where an area of about 32 acres has been laid out and protected for the purpose of cultivating the lobster. On the seaward side it is closed by banks, having hatches or sluices so as to admit of the flow and ebb of the tide. Last summer about 40,000 lobsters, of all sizes, were deposited in this ground. The maimed and the halt and the lame and probably the blind are accommodated with quarters where they can recover their lost claws; and a *crèche* for the infantine population is provided, where they can increase without the ordinary dangers attendant on lobsterial infancy. Food, in the shape of refuse fish, &c., is liberally supplied to this interesting community. In the winter the managers evinced the natural deceitfulness of human nature by catching and scalding the lobsters on which so much attention had been lavished, and a fine harvest rewarded them; 15,000 fine lobsters were sold, and the success of the experiment seems complete. Besides lobsters, it is intended that the farm shall be turned to account by being made a nursery for fish of various kinds. As a matter of fact many eels and other fishes were caught in the spring. The venture seems a very successful one; and in view of the enormous drain on the natural lobster grounds of America, it is very necessary that some such steps should be taken, as a supplement to the regulations proposed to prevent overfishing, and fishing in the breeding season.

The suggestion has been made that kangaroos might be generally cultivated in parks and other enclosures in this country; and it is probable that they would prove quite as useful as deer. A French naturalist, M. Cornély, has recently published some novel information on the subject, which seems to show that the proposal is perfectly feasible in every way. The experience of the various zoological societies in Europe shows that this marsupial will thrive and breed in our climate, damp being the only condition which is fatal to it. It will bear great extremes of heat and cold without injury. M. Cornély says that they are not destructive to trees and shrubs, and that if any individuals contract the habit of barking trees, they can be broken of it by shutting them up for two or three days without food. On being released they are so eager in search of grass that they do not touch the trees. As an ornamental adjunct to an English park, the presence of kangaroos would prove very valuable; their skins are highly prized on account of the quality of the leather, and most probably the principal obstruction to the more general cultivation of the animal is the prejudice that exists against the introduction of novelties.

A severe earthquake is reported to have occurred in Utah at midnight on June 18.

We learn with great pleasure that during the last three years there has been a very successful class for botany in connection with the Royal Veterinary College. From some notices of excursions made during the present summer which have been sent us, we see the field-class is one of the largest in London, or anywhere else we should think, and that the excursions are made the means of valuable training as well as of conveying solid information.

The Council of the Institution of Civil Engineers has just awarded the following, among other premiums and prizes:—A Telford Medal and a Telford Premium to Joseph Prestwich, F.R.S., Assoc. Inst. C.E., for his paper On the geological conditions affecting the construction of a tunnel between England and France. A Watt Medal, and a Telford Premium, to Alexander Carnegie Kirk, Assoc. Inst. C.E., for his paper On the mechanical production of Cold. A Telford Premium to Major James Browne, R.E., Assoc. Inst. C.E., for his paper On the tracing and construction of roads in mountainous tropical districts.

The following is a translation of the telegraphic despatch received in Paris by Gen. Morin from H.M. the Emperor of Brazil:—"Service from Rio de Janeiro to Paris *viâ* Falmouth, June 23, 6 o'clock. Electric telegraph established from Europe to Brazil. In addressing you my congratulations on this victory of science, I beg you to communicate my satisfaction to all your colleagues of the Academy of Sciences, to whom I owe so many marks of good-will. Don Pedro." The Academy immediately replied:—"The Academy, moved by his Majesty's remembrance, offers him its thanks, its respects, and its vows."

We would strongly urge on our readers' attention the appeal made through the daily papers by Mr. C. R. Markham, F.R.S., on behalf of the Cameron-Livingstone expedition. A letter from Lieut. Cameron, dated Ujiji, Feb. 28, tells of his having secured Dr. Livingstone's map and journal from Mikandany, which he was to send home in a few days. "The fish of Tanganyika," he states, "are more like sea than fresh-water fish. The Tanganyika is a veritable sea. I will send home a bottle of lake-water to be analysed. I cannot understand, receiving as it does rivers that flow through a salt soil, why the waters of the lake should not be salt. I believe that it is gradually being filled up."

The Report of the Commissioners of Fisheries for the State of New York states that in 1872 upwards of seven and a half millions of young shad were hatched and turned into the river Hudson at the cost of the State; and five millions were added in 1873. In the spring of the latter year, several hundred thousand shad were transported into California and into the great American lakes, where it is hoped they will become fairly acclimatised. The Sacramento River Salmon, and the Whitefish (*Coregonus albus*) have, in return, been introduced from the lakes and rivers of the West to the Eastern States. The enactment of a close time, during which the shad may be allowed to proceed unmolested up stream to spawn, is urgently desired, otherwise the natural increase of the fish can never occur, and the results of the artificial culture and propagation are nullified. The efforts of the Commissioners, who have erected extensive hatching premises at the cost of the State, have resulted in much more light being thrown on the subject of pisciculture. So thoroughly is the process of artificial spawning and fecundation carried out, and so carefully are the after stages of development assisted, that nearly cent. per cent. of the eggs taken are actually hatched. Under ordinary circumstances hardly twenty per cent. of the eggs are hatched. The importance of this system in re-stocking barren or depopulated waters cannot be over-estimated; but its results can never be fully successful until all impediments to the ascent of fish in the spawning season are removed; and when this is the case, artificial propagation will be no longer necessary.

Mr. Seth Green, the well-known American pisciculturist, proposes that some enterprising persons should turn their attention to frog culture; and he gives careful directions for procuring and treating the spawn and frogs. The spawn will hatch in about fifteen days, and if the tadpoles and young frogs are placed in a suitable position it is calculated that they may be easily reared, and a large profit made. The mode of feeding the frogs is to place pieces of meat, or other substance, to attract the flies, upon which the frogs feed; they will also eat the maggots of decayed meat, and even the meat itself. It appears that the demand for frogs in America is increasing, and in that case a frog-farm might be made a good investment.

OF the 120,000 salmon eggs which were sent from England to New Zealand in the winter of 1872, only about 60 are now alive. Although the ship *Oberon* by which they were sent was only 93 days on the passage, she was delayed on her arrival at Dunedin in consequence of a quantity of gunpowder being on board, which was obliged to be discharged before she could get into port. Probably the eggs were not properly fertilised; though several boxes of ova which were kept packed in ice in England for 108 days under exactly similar conditions, produced a good percentage of fish. The Government of New Zealand intend to repeat the experiment this year, when Glasgow will be the port of despatch.

ON July 1 severe thunderstorms were felt in several parts of southern France, principally in and around Montpellier, which seems to have been a centre of electric manifestations. But the harm done was principally owing to the hailstones, which have been numerous and of considerable size, many of them reaching the bulk of a marble. Many crops were damaged, and even in some instances completely destroyed. These hail clouds travelled at a rapid rate from the eastern Pyrenees, near the Rhone, in a north-eastern direction for more than a hundred miles with a breadth of not more than eight or nine miles. A map will be published in the *Atlas Météorologique* of France, which was founded by M. Leverrier in 1864, and was published in 1864-68. The volume for 1869 will be issued shortly, and will contain the most notable facts for 1870-71. The publication, which has been stopped since M. Leverrier left the Observatory, will be resumed yearly henceforth, the Versailles National Assembly having granted the necessary funds. It has been remarked already by M. Charles Martin and the two Becquerels that hailstorms are always connected with thunderstorms, and follow mostly a strongly zigzag line, almost always recurring in a number of chosen spots, for which they seem to feel an irresistible attraction. Woods are very seldom touched by them, a fact which has induced MM. Becquerel to advise farmers to grow trees in order to be protected against hailstones. M. Arago encouraged some years ago a scheme for erecting captive balloons with an iron rod, connected with the earth by an iron chain, in order to provoke electrical discharges and suppress the cause of hail-production. The proposal seems to be rather daring, but the above statements render it desirable that it should at least be tried. Aiming at certain spots in preference to others, the efficiency of protection is sure to be easily tried. M. Colladon, a Genevan physicist, has published many experiments on the fall of lightning on trees. He supposes that poplars are really very attractive, and that they may effectually render the same service as true lightning conductors, if plates of iron are connected with the trunk and earth. These suggestions are very likely to be tried on a grand scale.

ICEBERGS seem to be unusually plentiful this season; a despatch from New York states that several ships have encountered them in uncommonly large numbers and of very unusual size.

MESSRS. TRÜBNER & CO. have in the press "Tea, Coffee, and Cocoa," a practical treatise on the examination of tea, coffee, and cocoa, by Mr. J. A. Wanklyn, M.R.C.S.

ANOTHER supplement, No. 37, to Petermann's *Mittheilungen* has just been issued, containing a long account of Carl Mauch's travels in the interior of South Africa in the years 1865-72. The accompanying map illustrates a journey made by Mauch in 1871-72, from Simbabye in 20° 10′ S., and 31° 40′ E. in a north and east direction, to Senna on the Zambesi, in 17° 20′ S., 35° 8′ E.

IF anyone wants to see how lamentable is the absence of practical work in the examination system of the University of London, let him get "Questions in Chemistry and Natural Philosophy given at the Matriculation Examination of the University of London from the year 1864 to June 1873, classified according to the syllabus of subjects," by C. J. Woodward, B.Sc. (Simpkin, Marshall, & Co.) We say nothing against the book itself, which is a creditable compilation of its kind, but the system capable of giving birth to such a text-book must be an unmitigated encouragement to "Cram."

A TELEGRAM dated Singapore, July 2, states that H.M.S. *Basilisk* had arrived there, having successfully completed a survey of the previously unknown north-eastern shores of New Guinea. Capt. Moresby reports that the existence of a new and shorter route between Australia and China is an established fact.

THE additions to the Zoological Society's Gardens during the past week include a Branded Ichneumon (*Herpestes fasciatus*) from West Africa, presented by Lady Sheffield; a Rose-ringed Parrakeet (*Palæornis docilis*) from the Zambesi River, presented by Mrs. Loveday; a Chimpanzee (*Troglodytes niger*) from West Africa; a Spectacled Bear (*Ursus ornatus*) from the Upper Amazon; an Eyra Cat (*Felis eyra*)) from South America; a Nisnas Monkey (*Cercopithecus nisnas*), an Eleonora Falcon (*Falco eleonoræ*) deposited; two Pumas (*Felis concolor*), and nine Rosy-billed Ducks (*Metopiana peposaca*) born in the gardens.

SCIENTIFIC SERIALS

THE *Journal of the Chemical Society* for June contains the following papers communicated to the Society:—On the cobalt bromides and iodides, by Walter Noel Hartley. The bromide is prepared by allowing metallic cobalt to stand in a dish with bromine and water for a week or so, when a purple solution is obtained which becomes blue after dilution and filtration. When evaporated over sulphuric acid, purple-red prismatic crystals separate, having the formula $CoBr_2 . 6H_2O$. When heated to 100° the salt loses 4 molecules of water. The iodide obtained in the same manner forms a mass of highly deliquescent green crystals. Heated to 100° in the air a basic salt is produced; on adding water and filtering a red oxyiodide is obtained, having possibly the formula Co_2I_3O. The green crystals have the formula $CoI_2 . 2H_2O$; an iodide, $CoI_2 . 6H_2O$, of a dusky red colour also exists, and likewise the anhydrous salt CoI_2, which is described as a black amorphous substance.—Note on the solubility of plumbic chloride in glycerin, by Charles H. Piesse. The author has made quantitative determinations of the amount of $PbCl_2$ dissolved by pure glycerin and by mixtures of glycerin and water. The mean of two experiments gives 1·995 as the amount of $PbCl_2$ dissolved by 100 parts of glycerin. The solubility is not perceptibly increased by the temperature. Experiments were also made with mixtures containing respectively 50, 75, and 87·5 per cent. of water, and the amount of $PbCl_2$ dissolved agrees very closely in each case with the number obtained by adding the amount of the salt dissolved in the water to the amount dissolved by the glycerin, the solubility in water being taken at 0·733 per cent.—On the products of the decomposition of castor oil. No. 2. The distillation of sodium ricinoleate, by E. Neison. The author's experiments confirm the statements of Bouis, that the sodium salt named yields methyl-hexyl ketone on destructive distillation. The results obtained by Städeler, who got by this reaction only heptylic aldehyde, are explained by a difference in the nature of the soap used.—Note on a reaction of gallic acid, by Henry R. Procter. When a solution of potassic or sodic arsenate is added to one containing gallic acid and the mixture exposed to the air, oxygen is absorbed, and an intense green colour produced. Dilute acids change the colour to purplish red—strong H_2SO_4